MITSUBISHI ELECTRIC

*Changes for the Better*

for a greener tomorrow eco Changes

Air-cooled Chilling Units

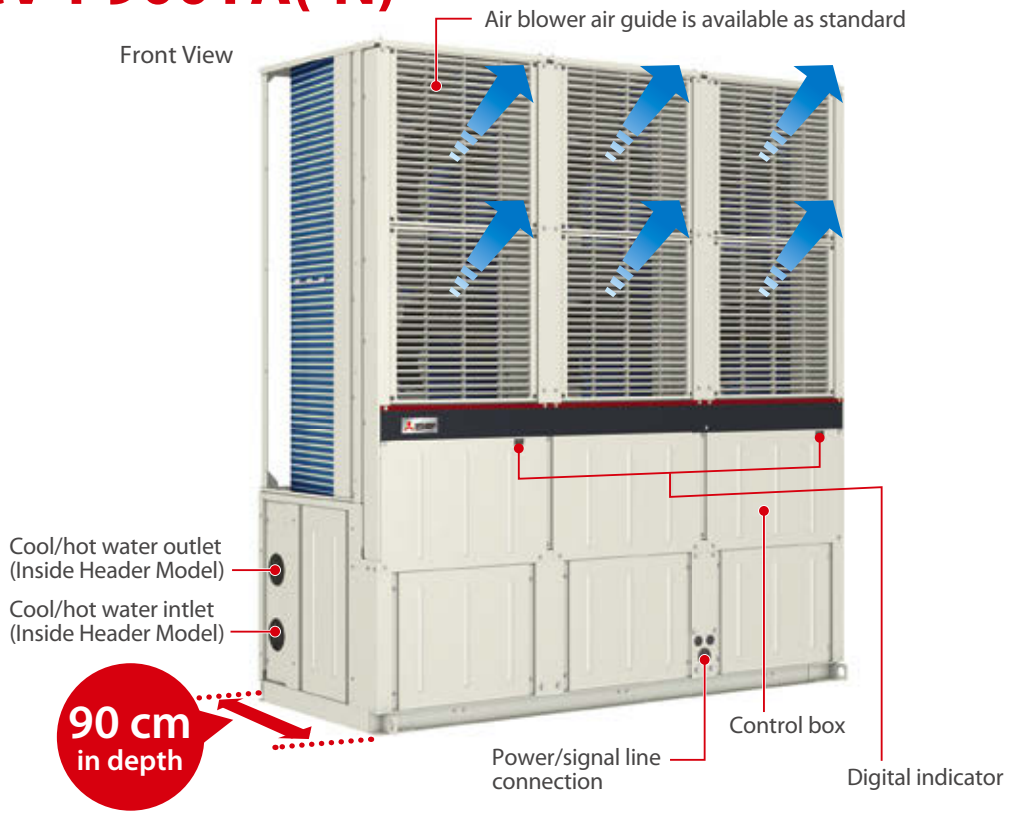
## *NEW Release of a Modular Chiller*

# e-series

EAHV-P900YA(-N)
EAHV-P900YA-H(-N)
EACV-P900YA(-N)

# Names and Features of Parts

## EAHV-P900YA(-N)
## EAHV-P900YA-H(-N)
## EACV-P900YA(-N)




### 1 High Efficiency Inverter Compressor

A new DC inverter scroll compressor is incorporated. Two compressors each are incorporated to increase efficiency.

### 2 Two-stage Cooling Circuit

A configuration of two independent refrigerant circuits and the series connection of water-side heat exchangers increase the performance (two-stage cooling).

### 3 Front Service

The control box, etc. are arranged at the front. In addition, the front panel has been divided into 6 parts to reduce weight.

### 4 U-shaped High Performance Compact Air Heat Exchanger

U-shaped air heat exchangers are used. Installing them in a row makes the system thinner.
Weather resistant coating is provided for the heat transfer plate fin as standard.

### 5 Fans Are Placed at Even Intervals

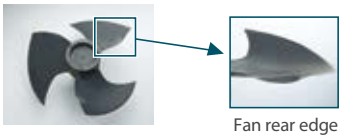
Top flow has the disadvantage that the distance between the fan and heat exchanger is not identical, so the air cannot be sucked uniformly. The use of side flow has reduced the distance between each fan and heat exchanger and ensured the distance between them is identical to allow air to be sucked uniformly from the heat exchanger. Thus, the performance of the heat exchanger is maximized.

### 6 Fan Inverter Control

Air blower fans are also equipped with an inverter to save energy.

### 7 Inflexed fan

Adoption of a fan with improved ventilation characteristics and a newly designed rear edge that suppresses wind turbulence raises fan operation efficiency.




### 8 Digital Indicator (inside the Board)

Displays the high pressure, low pressure, error code, etc.

### 9 Power Cable Port

The power cable can be connected from below the front panel of the module.

### 10 Air Blower Air Guide Is Available as Standard

Mitsubishi's unique diagonally upward blowing structure.
It allows for small footprint installation

# Excellent Energy Saving Performance

## High EER, High COP

- Achieved **EER 3.30** and **COP 3.50**.*

* EER shows the value at an outdoor air temperature of 35°C and cool water inlet/outlet temperatures of 12°C/7°C, respectively.
COP shows the value at an outdoor air temperature of 7°C and hot water inlet/outlet temperatures of 40°C/45°C, respectively.
Pump input is not included.

- The air suction area is expanded to maximize the performance of the air heat exchanger.
- Two independent refrigerant circuits are provided in the module to cool and heat water in two stages in series to improve EER and COP.

## High ESEER

- **ESEER 5.46.***

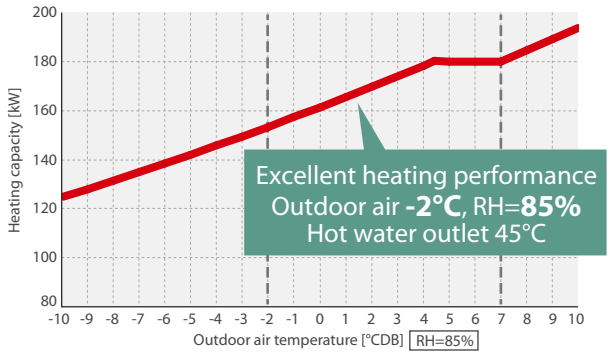
* Calculated on EUROVENT condition.
Includes pump input based on EN14511.

- Achieved the same ESEER from 30 to 180 HP.

## Excellent Heating Performance

- A heat pump technology captures heat from the outdoor air. The heating performance decrease which occurs with a decrease in outdoor air temperature has been made up for by installing a larger number of units. This disadvantage has been eliminated with the e-series by increasing the heating performance in the low outdoor air temperature range. This allows the user to reduce the required number of units.

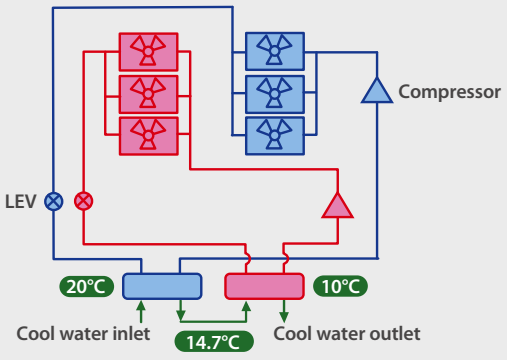
- **e-series (EAHV-P900YA×3)**

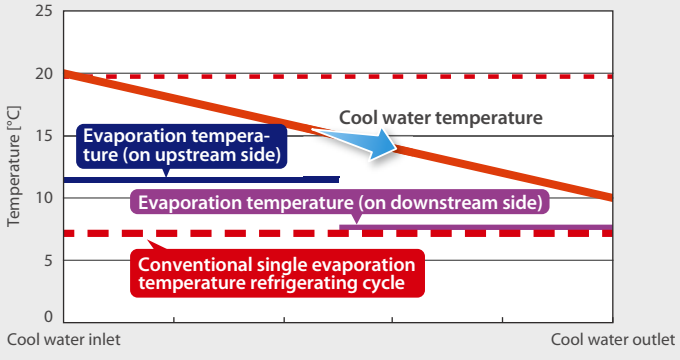



## Large Temperature Difference Operation Significantly Increases Efficiency

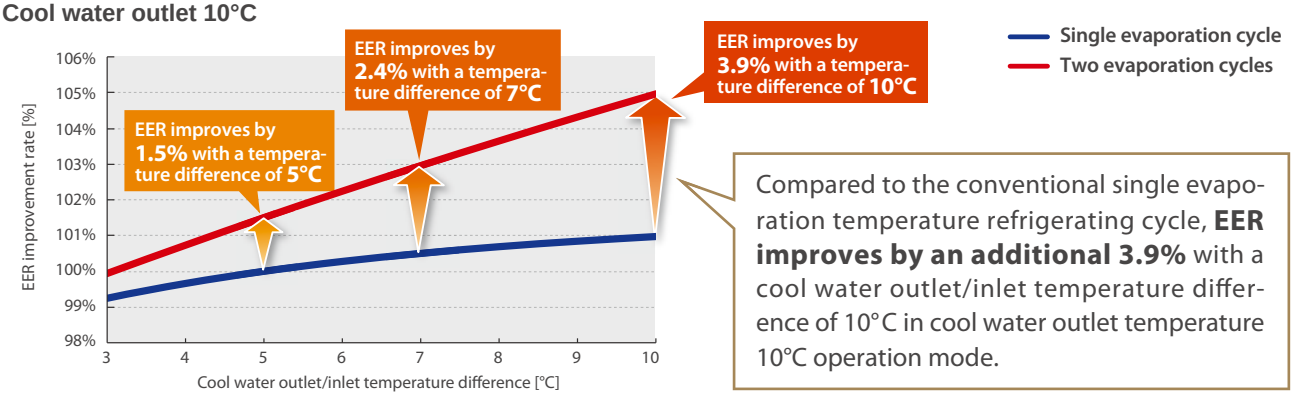
### Two Evaporation Temperature Refrigerating Cycles.

Two evaporators are connected to keep the evaporation temperature on the upstream side of cool water high.




- **Cool water outlet 10°C**



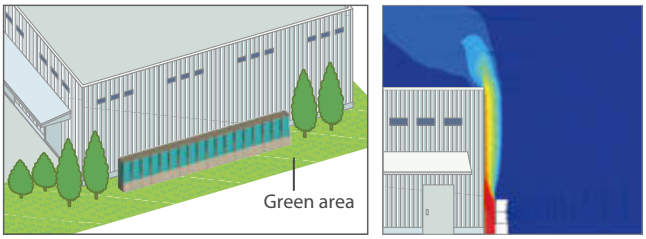

Compared to the conventional single evaporation temperature refrigerating cycle, **EER improves by an additional 3.9%** with a cool water outlet/inlet temperature difference of 10°C in cool water outlet temperature 10°C operation mode.

# Sophisticated Design and Small Footprint Installation

## Single-row Installation

- Installable anywhere, such as along the outer wall or in the corner of a factory, or in a narrow space of a building.
- The compact and thin design allows for the consideration of installation on each floor of a building, as is the case with industrial air conditioners.
  (If the inside header specification is selected)
- The figure shows the air blowing surface directed toward the wall (a diagonal blowing air guide is equipped as standard).
  Directing the air blowing surface toward the wall is effective in preventing short cycling.

**Example of installation along the outer wall of a factory**



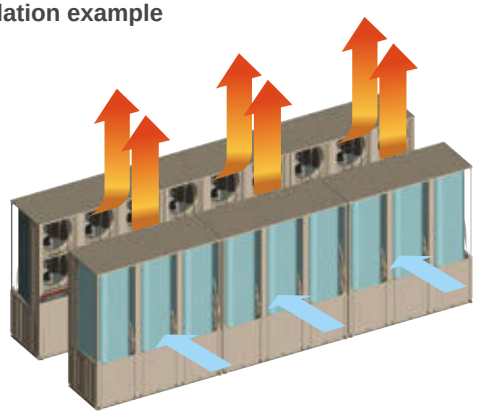

* For details on installation, refer to the installation manual.

## Double-row Installation

- Front surface-facing double-row installation in which the units' air blowing surfaces are directed toward each other is possible (a diagonal blowing air guide is equipped as standard).
- Rear surface-facing double-row installation in which the units' air suction surfaces are directed toward each other is also possible.

* The image figure shows an example of installation using the inside header specification.

**Front surface-facing double-row installation example**

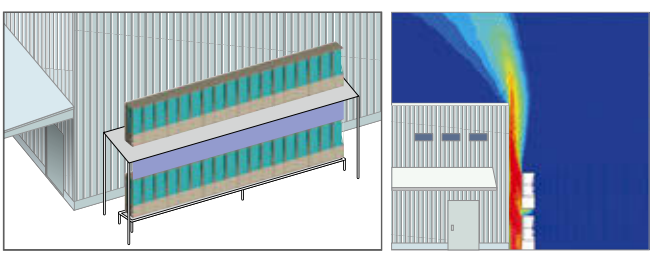


* For details on installation, refer to the installation manual.

## Single-row Double-stack Installation

- The side-flow feature allows for a single-row double-stack installation by using a frame for the units installed in a row. Additional units can be installed above the units. If you plan to add units in the future, it is recommended to make a plan with consideration given to double-stack installation after the second phase of installation.

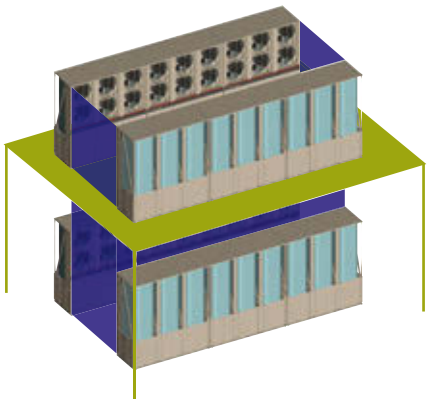
**Single-row double-stack installation example**



• The frame is to be supplied at the customer's site.
• The figure shows an example of using the inside header specification.

## Double-row Double-stack Installation

- A double-row double-stack installation is possible by using a frame for the units installed in two rows.
  If you plan to add units in the future, it is recommended to make a plan with consideration given to double-stack installation.



• The frame is to be supplied at the customer's site.
• The figure shows an example of using the inside header specification.

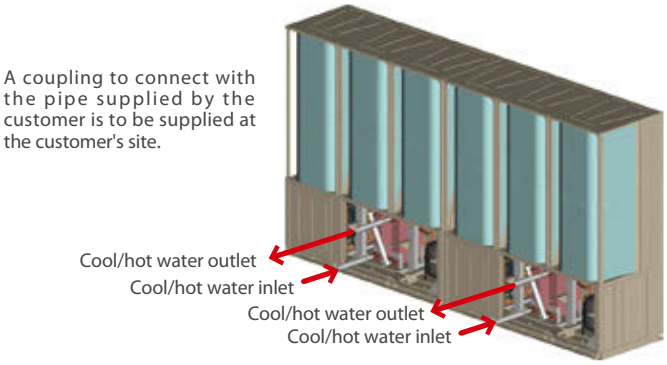
# Inside Header "-N" model only

## Mitsubishi Electric's Unique Inside Header Incorporates Field Water Pipe Header into Unit

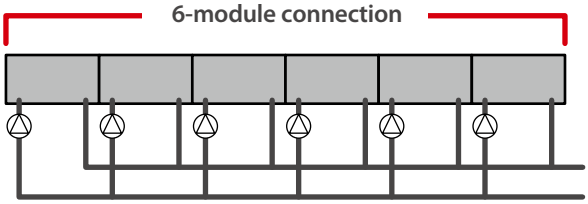
- The field water pipe header section that is usually required to connect the unit to the field water pipe is now available as a manufacturer option (hereinafter referred to as the "inside header") which can be incorporated into the unit at the factory before shipment (a supplied connection kit is used for the connection work at the customer's site).
- This allows for incorporating the field water pipe header section into the unit.
- In addition, the field connection work of the inside header is very simple. Significant simplification of the water pipe connection compared to the previous one has reduced the installation time.

## Standard Pipe Specification

**The figure shows a 60 HP unit in which two 30 HP modules are connected.**




**Field water pipe header connection image** *1
(In the case of installing one pump for one module)

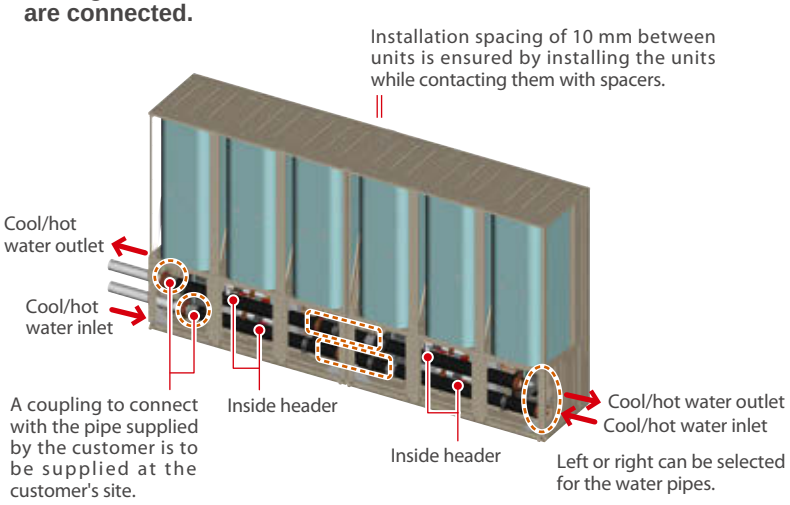



- Number of pumps: 6
- Pipes connected at the site: 12 points

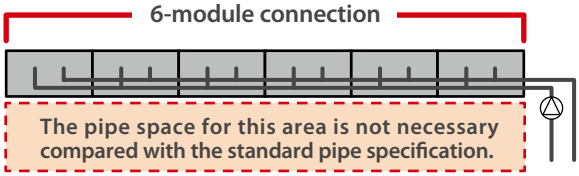
*1 Be sure to install a strainer near the chiller on the inlet side of the cool/hot water pipe to prevent the entry of foreign substances such as dirt and sand particles to the plate heat exchanger.

## Inside Header Specification Left or right can be selected for the water pipes

**The figure shows a 60 HP unit in which two 30 HP modules are connected.**




**Field water pipe header connection image** *1
(In the case of installing one pump for one unit)

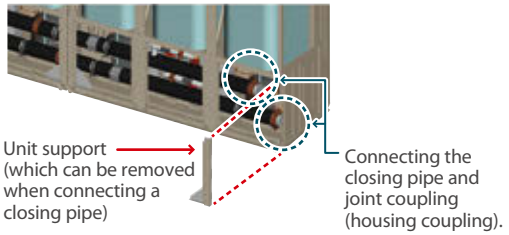



- Number of pumps: 1
- Pipes connected at the site: 2 points (10 internal connection points)

*1 Be sure to install a strainer near the chiller on the inlet side of the cool/hot water pipe to prevent the entry of foreign substances such as dirt and sand particles to the plate heat exchanger.

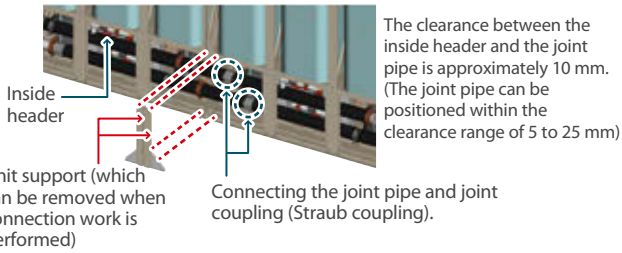
### Connecting Pipe End [Connection at Customer's Site]

**Connecting Pipe End**




**Connecting Joint Pipe**

- Connecting the joint coupling (housing coupling)

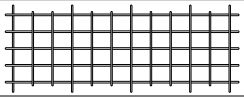
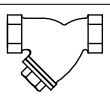


# Line up

| Name | Piping Type | A/C Type | Model | Image |
|---|---|---|---|---|
| Air-Cooled Chilling Unit e-series | Standard | Heat Pump | EAHV-P900YA (-BS) |  |
| | | Heating only | EAHV-P900YA-H (-BS) | |
| | | Cooling only | EACV-P900YA (-BS) | |
| | Inside Header | Heat Pump | EAHV-P900YA-N (-BS) |  |
| | | Heating only | EAHV-P900YA-H-N (-BS) | |
| | | Cooling only | EACV-P900YA-N (-BS) | |

● **Connect up to six units**


## Optional parts

| Description | Image | Model | Remarks |
|---|---|---|---|
| Piping Kit |  | EA-01HK | for Inside Header type |
| Connection Piping Kit |  | EA-02HK | for Inside Header type |
| Fin Guard |  | EA-130FG | for Standard Pipe type, Inside Header type |
| Representative-water temperature sensor |  | TW-TH16-E | for Standard Pipe type, Inside Header type |
| Y type STRAINER 50A |  | YS-50A | for Standard Pipe type |

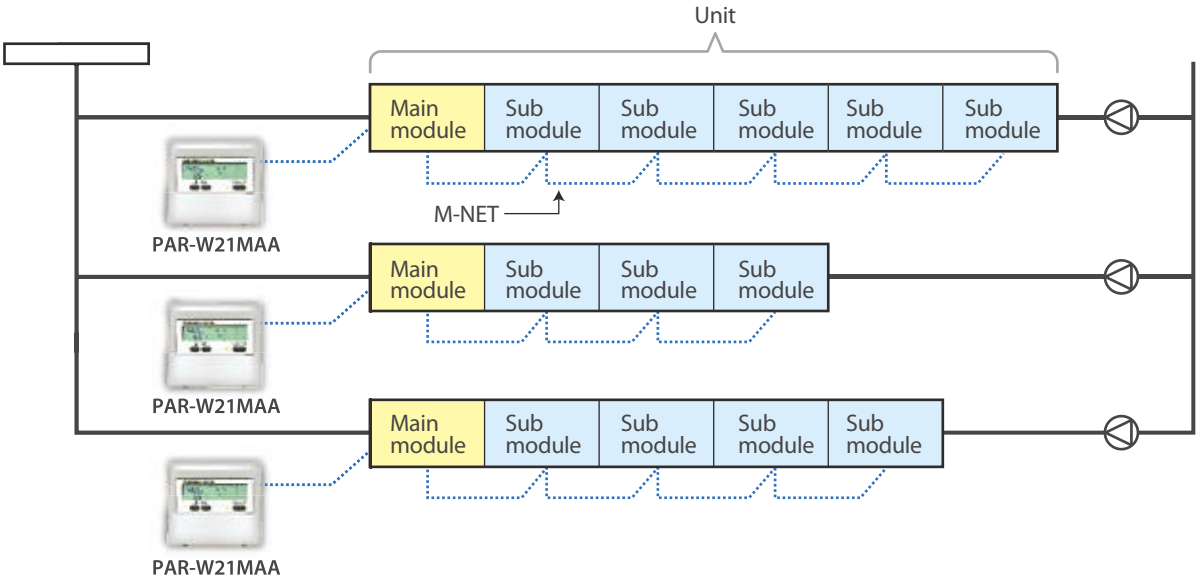
# Easy System Control

## Controller Functions

| | Unit Remote Control **PAR-W21MAA** |
|---|---|
| Control | Simultaneous control |
| Number of modules that can be connected | 6 |
| Number of units that can be connected | 1 |
| Number of supported water lines | 1 |
| ON/OFF | ○ |
| Cooling/heating switch | ○ |
| FAN operation switch for snowfall | × |
| Target outlet temperature setting | ○ |
| Cooling/heating demand ON/OFF | × |
| Scheduled operation | ○ |
| Individual error display | ○ |
| Optimal frequency switching control | × |
| Each unit's operation status | × |
| Trend graph display | × |
| Configuration image |  |

**●Remote control connection image**

* Up to 6 modules and one unit can be connected for each remote control.
* Simultaneous control.



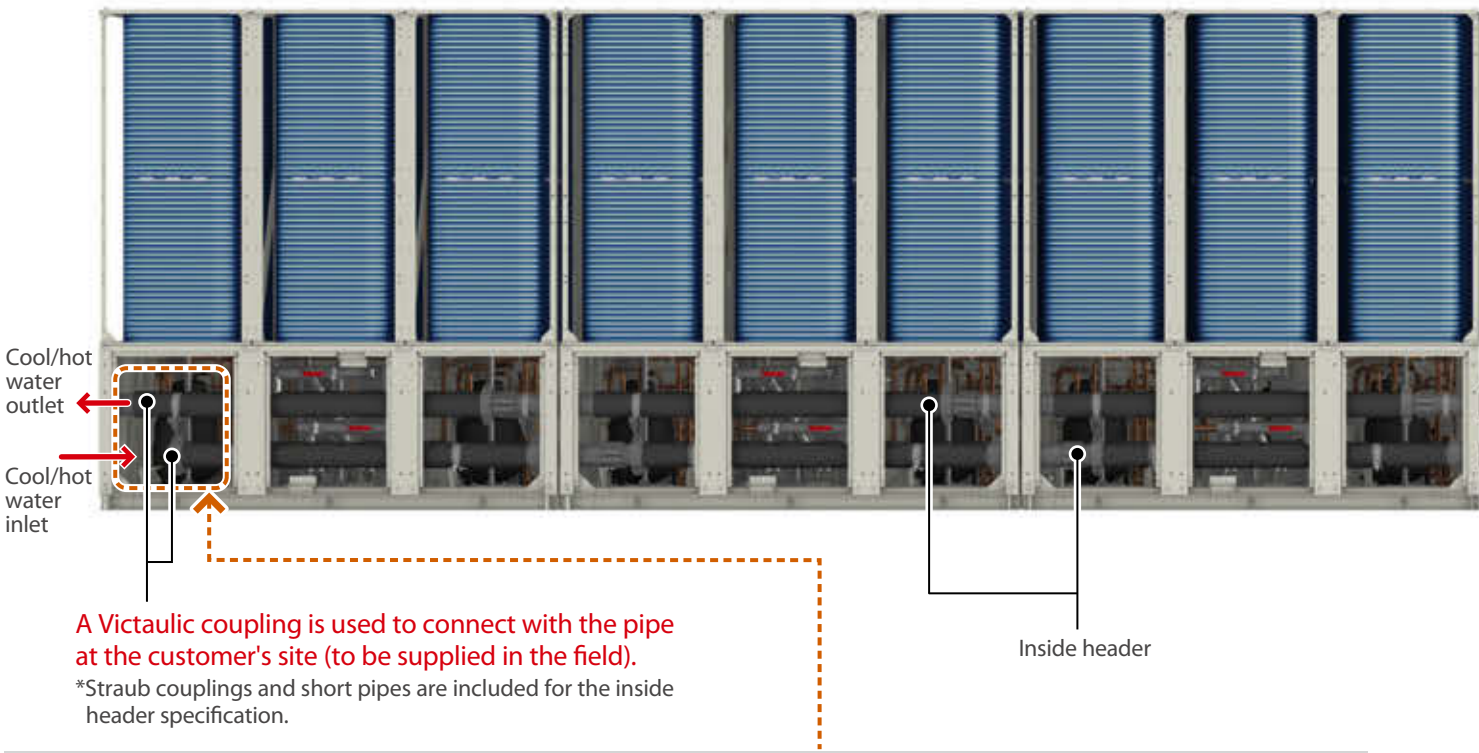

## Demand Control

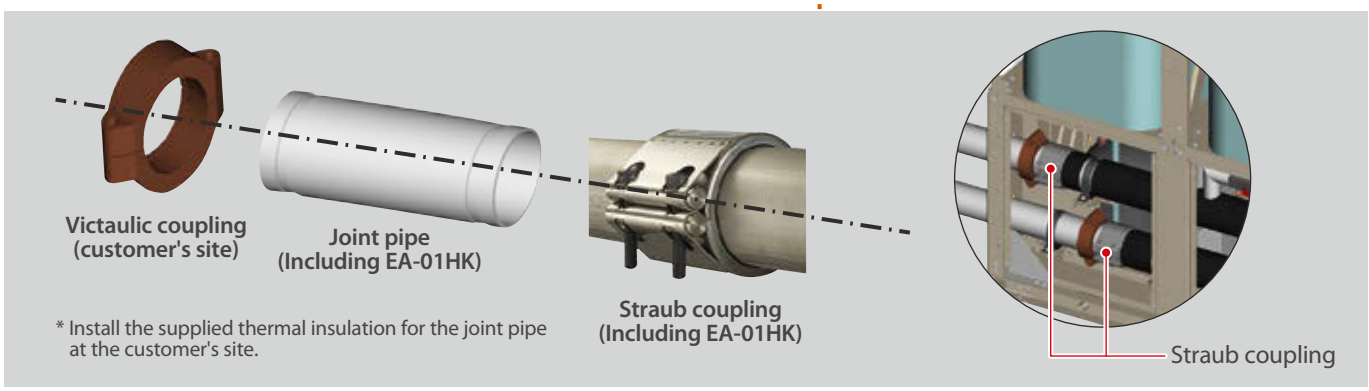
Forced capacity control up to the demand upper limit by an external input to the unit (non-voltage "a" contact). Heating demand is possible in addition to the cooling demand.

# Inside Header "-N" model only

## About Pipe Connection Kit

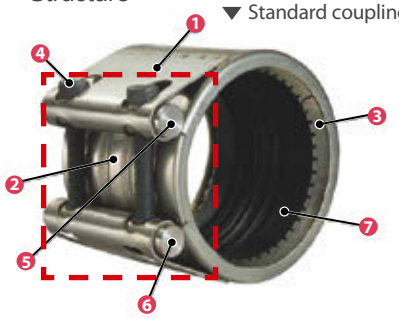
●**This figure shows 540 HP (EAHV-P900A-N×6) as an example.**



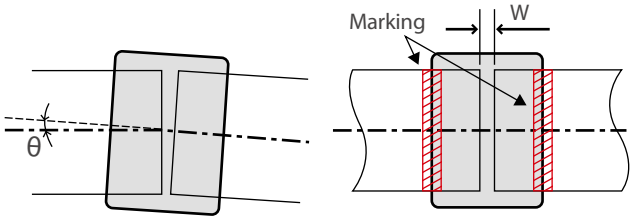




●Structure

▼Standard coupling



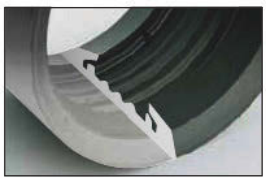

| No. | Part name | Material |
|---|---|---|
| 1 | Casing | SUS 304 |
| 2 | Sliding plate | SUS 301 or 304 |
| 3 | Grip ring | SUS 301 |
| 4 | Tightening bolt | SUS XM7 |
| 5 | Rod washer | SUS 304 |
| 6 | Rod nut | SUS 304 |
| 7 | Rubber sleeve | EPDM |



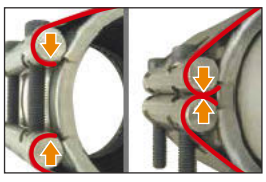

●**Allowable clearance and tilt range**

Allowable pipe clearance value [W]=0 to 25 mm

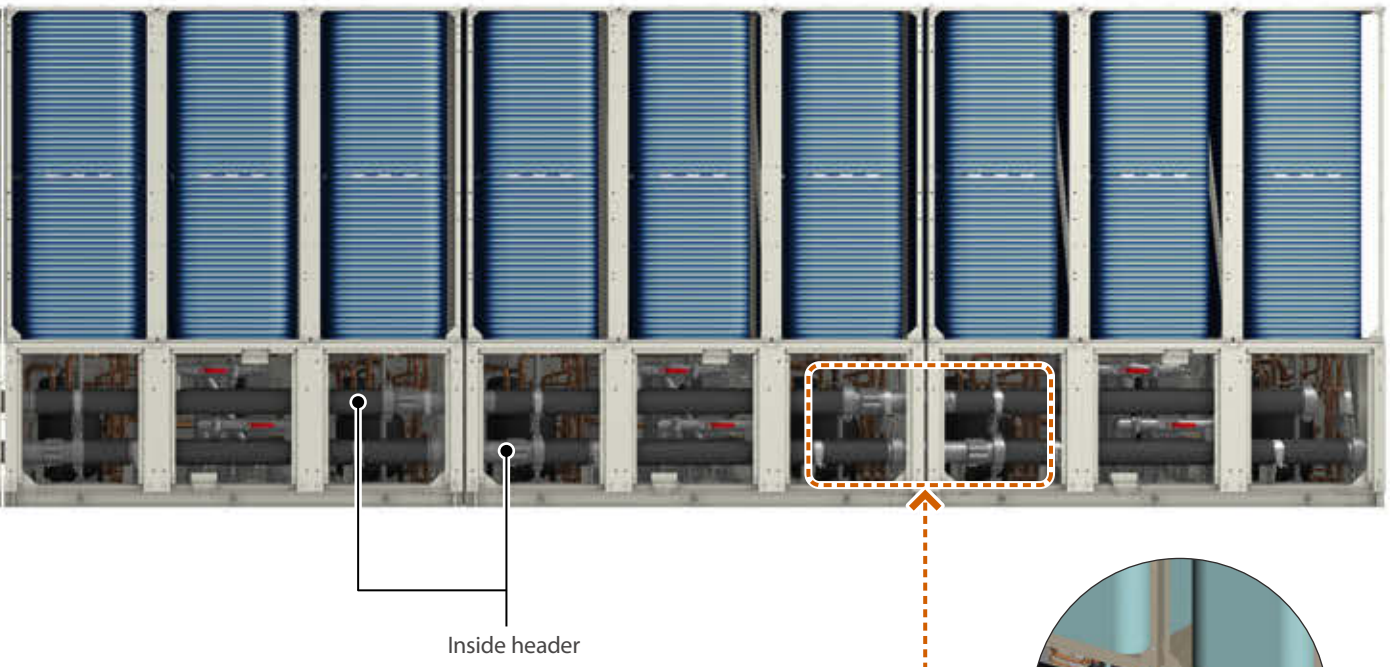
Allowable pipe tilt angle [θ]=±2°

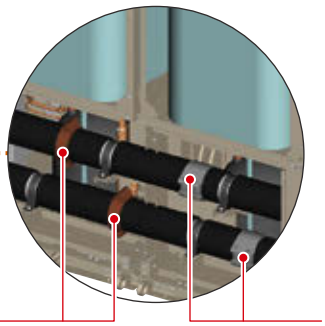


The sealed rubber has a lip structure to improve the water-stopping performance. Adjust the position of the Straub coupling so the marking on both sides can be seen.

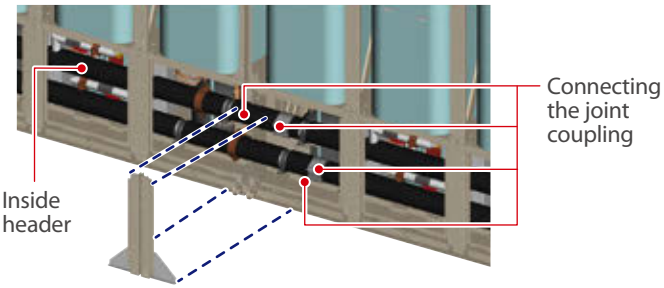


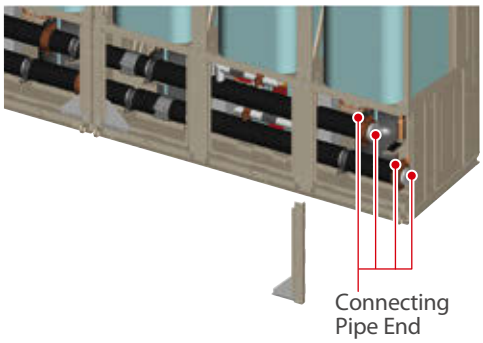
Just tighten the bolt until the casing fits against (comes into contact with) the metal. Anyone can connect the pipes evenly and securely, regardless of their skills and the type of the pipe used.



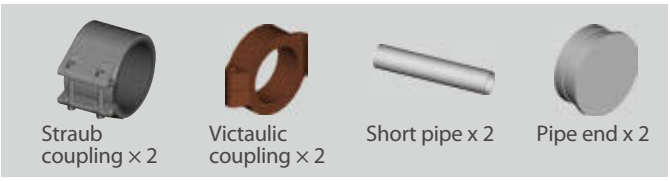

## Connecting Pipe End (Connection at Customer's Site)



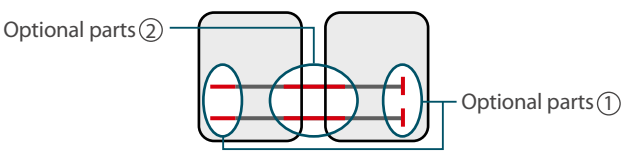




| Capacity | Module (Inside header) | Optional parts ① **EA-01HK** (model) | Optional parts ② **EA-02HK** (model) |
|---|---|---|---|
| 30 HP | 1 | 1 | 0 |
| 60 HP (30 HP×2) | 2 | 1 | 1 |
| 90 HP (30 HP×3) | 3 | 1 | 2 |
| 120 HP (30 HP×4) | 4 | 1 | 3 |
| 150 HP (30 HP×5) | 5 | 1 | 4 |
| 180 HP (30 HP×6) | 6 | 1 | 5 |

### ■Optional parts① (Piping Kit) **EA-01HK**




### ■Optional parts② (Connection Piping Kit) **EA-02HK**


The Victaulic coupling and Straub coupling mentioned in the explanation are product names.

## Installation Example

For process cooling of the production line (drying process)

### Japanese Factory (Shizuoka Prefecture)

# Space-saving installation with a built-in header specification* contributes to the production.

* With this option, the header part of usually required local water piping is pre-assembled inside the chiller (module connection work is performed onsite) and shipped.

Newly installed

**<e-series> Air-Cooled Cooling Only Chiller**
- Cooling only 90kW x 5 x 4
- Cooling only 90kW x 4 x 1

▲e-series as seen from behind. It is very neat and has beautiful piping.

◀Newly installed power controller

▲Using the inside header specification reduces both the cost and energy consumption by decreasing the number of cold water pumps from 24 units to 5 units.

e-series equipment efficiently installed in a limited space between a high voltage power receiving facility and an air conditioning facility ▼►

## Advantages of adopting e-Series equipment (Customer comments)

**1** Because of its thin profile with inside header specification, it can be installed while conserving space.

**2** The inside header specification requires only one cold water pump for each unit instead of each module, which decreases both the cost and energy consumption. The system also reduces the time and effort necessary for inspection.

| Model | | | | EAHV-P900YA(-N)(-BS) |
|---|---|---|---|---|
| Power source | | | | 3-phase 4-wire 380-400-415V 50/60Hz |
| Cooling capacity *1 | | | kW | 90.00 |
| | | | kcal/h | 77,400 |
| | | | BTU/h | 307,080 |
| | Power input *3 | | kW | 27.27 |
| | Current input 380-400-415V | | A | 46.0 - 43.7 - 42.2 |
| | EER (Pump input is not included) | | | 3.30 |
| | ESEER (Pump input is not included) | | | 5.66 |
| | EER (Includes pump input based on EN14511) *4 | | | 3.08 |
| | ESEER (Includes pump input based on EN14511) *5 | | | 5.46 |
| | Water flow rate | | $m^3/h$ | 15.5 |
| Heating capacity *2 | | | kW | 90.00 |
| | | | kcal/h | 77,400 |
| | | | BTU/h | 307,080 |
| | Power input *3 | | kW | 25.71 |
| | Current input 380-400-415V | | A | 43.4 - 41.2 - 39.7 |
| | COP (Pump input is not included) | | | 3.50 |
| | COP (Includes pump input based on EN14511) *4 | | | 3.25 |
| | Water flow rate | | $m^3/h$ | 15.5 |
| Maximum current input | | | A | 61 |
| Water pressure drop *6 | | | kPa | 135 |
| Temp range | Cooling | | ºC | Outlet water 5 ~ 25 *8 |
| | | | ºF | Outlet water 41 ~ 77 *8 |
| | Heating | | ºC | Outlet water 30 ~ 55 *8 |
| | | | ºF | Outlet water 86 ~ 131 *8 |
| | Outdoor | | ºC | -15 ~ 43 *8 |
| | | | ºF | 5 ~ 109.4 *8 |
| Circulating water volume range | | | $m^3/h$ | 7.7 ~ 25.8 |
| Sound pressure level (measured in anechoic room) at 1m *6 | | | dB (A) | 65 |
| Sound power level (measured in anechoic room) *6 | | | dB (A) | 77 |
| Diameter of water pipe (Standard piping) | Inlet | | mm (in) | 50A (2B) housing type joint |
| | Outlet | | mm (in) | 50A (2B) housing type joint |
| Diameter of water pipe (Inside header piping) | Inlet | "-N" model | mm (in) | 100A (4B) housing type joint |
| | Outlet | | mm (in) | 100A (4B) housing type joint |
| External finish | | | | Polyester powder coating steel plate |
| External dimension HxWxD | | | mm | 2450 x 2250 x 900 |
| Net weight | Standard piping | | kg (lbs) | 987 (2176) |
| | Inside header piping "-N" model | | kg (lbs) | 1022 (2253) |
| Design pressure | R410A | | MPa | 4.15 |
| | Water | | MPa | 1.0 |
| Heat exchanger | Water side | | | Stainless steel plate and copper brazing |
| | Air side | | | Plate fin and copper tube |
| Compressor | Type | | | Inverter scroll hermetic compressor |
| | Maker | | | MITSUBISHI ELECTRIC CORPORATION |
| | Starting method | | | Inverter |
| | Quantity | | | 2 |
| | Motor output | | kW | 11.7 x 2 |
| | Case heater | | kW | 0.045 x 2 |
| | Lubricant | | | MEL32 |
| Fan | Air flow rate | | $m^3/min$ | 77 x 6 |
| | | | L/s | 1283 x 6 |
| | | | cfm | 2719 x 6 |
| | Type, Quantity | | | Propeller fan x 6 |
| | Starting method | | | Inverter |
| | Motor output | | kW | 0.19 x 6 |
| Protection | High pressure protection | | | High pres.Sensor & High pres.Switch at 4.15MPa (601psi) |
| | Inverter circuit | | | Over-heat protection, Over current protection |
| | Compressor | | | Over-heat protection |
| Refrigerant | Type x charge | | | R410A x 19(kg) x 2 *7 |
| | Control | | | LEV |

Note.

*1 Under normal cooling conditions at outdoor temp 35ºCDB/24ºCWB (95ºFDB/75.2ºFWB) outlet water temp 7ºC (44.6ºF) inlet water temp 12ºC (53.6ºF).

*2 Under normal heating conditions at outdoor temp 7ºCDB/6ºCWB (44.6ºFDB/42.8ºFWB) outlet water temp 45ºC (113ºF) inlet water temp 40ºC (104ºF).

*3 Pump input is not included.

*4 Pump is not included in e-series.

*5 Calculated based on EUROVENT condition.

*6 Under normal cooling conditions at outdoor temp 35ºCDB/24ºCWB (95ºFDB/75.2ºFWB) outlet water temp 7ºC (44.6ºF) inlet water temp 12ºC (53.6ºF) capacity 90kW water flow rate 15.5$m^3$/h.

*7 Amount of factory-charged refrigerant is 6 (kg)×2. Please add the refrigerant at the field.

*Please don't use the steel material for the water piping.

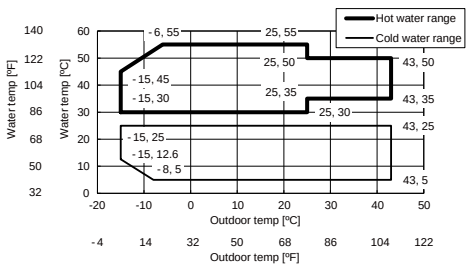
*Please always make water circulate, or pull the circulation water out completely when not in use.

*Please do not use groundwater or well water in direct.

*The water circuit must be closed circuit.

*Due to continuous improvement, the above specifications may be subject to change without notice.

*8




| Unit converter |
|---|
| kcal/h = kW x 860 |
| BTU/h = kW x 3,412 |
| lbs = kg/0.4536 |
| cfm = $m^3$/min x 35.31 |

| Model | | | | EAHV-P900YA-H(-N)(-BS) |
|---|---|---|---|---|
| Power source | | | | 3-phase 4-wire 380-400-415V 50/60Hz |
| Heating capacity *1 | | | kW | 90.00 |
| | | | kcal/h | 77,400 |
| | | | BTU/h | 307,080 |
| | Power input *2 | | kW | 25.71 |
| | Current input 380-400-415V | | A | 43.4 - 41.2 - 39.7 |
| | COP（Pump input is not included） | | | 3.50 |
| | COP（Includes pump input based on EN14511） *3 | | | 3.25 |
| | Water flow rate | | $m^3/h$ | 15.5 |
| Maximum current input | | | A | 61 |
| Water pressure drop *4 | | | kPa | 135 |
| Temp range | Heating | | ºC | Outlet water 30 ～ 55 *6 |
| | | | ºF | Outlet water 86 ～ 131 *6 |
| | Outdoor | | ºC | -15 ～ 43 *6 |
| | | | ºF | 5 ～ 109.4 *6 |
| Circulating water volume range | | | $m^3/h$ | 7.7 ～ 25.8 |
| Sound pressure level (measured in anechoic room) at 1m *4 | | | dB (A) | 65 |
| Sound power level (measured in anechoic room) *4 | | | dB (A) | 77 |
| Diameter of water pipe (Standard piping) | Inlet | | mm (in) | 50A (2B) housing type joint |
| | Outlet | | mm (in) | 50A (2B) housing type joint |
| Diameter of water pipe (Inside header piping) | Inlet | "-N" model | mm (in) | 100A (4B) housing type joint |
| | Outlet | | mm (in) | 100A (4B) housing type joint |
| External finish | | | | Polyester powder coating steel plate |
| External dimension HxWxD | | | mm | 2450 x 2250 x 900 |
| Net weight | Standard piping | | kg (lbs) | 987 (2176) |
| | Inside header piping "-N" model | | kg (lbs) | 1022 (2253) |
| Design pressure | R410A | | MPa | 4.15 |
| | Water | | MPa | 1.0 |
| Heat exchanger | Water side | | | Stainless steel plate and copper brazing |
| | Air side | | | Plate fin and copper tube |
| Compressor | Type | | | Inverter scroll hermetic compressor |
| | Maker | | | MITSUBISHI ELECTRIC CORPORATION |
| | Starting method | | | Inverter |
| | Quantity | | | 2 |
| | Motor output | | kW | 11.7 x 2 |
| | Case heater | | kW | 0.045 x 2 |
| | Lubricant | | | MEL32 |
| Fan | Air flow rate | | $m^3/min$ | 77 x 6 |
| | | | L/s | 1283 x 6 |
| | | | cfm | 2719 x 6 |
| | Type, Quantity | | | Propeller fan x 6 |
| | Starting method | | | Inverter |
| | Motor output | | kW | 0.19 x 6 |
| Protection | High pressure protection | | | High pres.Sensor & High pres.Switch at 4.15MPa (601psi) |
| | Inverter circuit | | | Over-heat protection, Over current protection |
| | Compressor | | | Over-heat protection |
| Refrigerant | Type x charge | | | R410A x 19(kg) x 2 *5 |
| | Control | | | LEV |

Note.

*1 Under normal heating conditions at outdoor temp 7ºCDB/6ºCWB (44.6ºFDB/42.8ºFWB) outlet water temp 45ºC (113ºF) inlet water temp 40ºC (104ºF).

*2 Pump input is not included.

*3 Pump is not included in e-series.

*4 Under normal heating conditions at outdoor temp 7ºCDB/6ºCWB (44.6ºFDB/42.8ºFWB) outlet water temp 45ºC (113ºF) inlet water temp 40ºC (104ºF) capacity 90kW water flow rate 15.5$m^3$/h.

*5 Amount of factory-charged refrigerant is 6 (kg)×2. Please add the refrigerant at the field.

*Please don't use the steel material for the water piping.

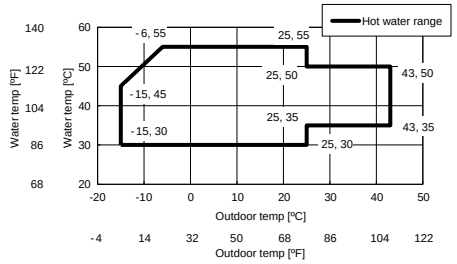
*Please always make water circulate, or pull the circulation water out completely when not in use.

*Please do not use groundwater or well water in direct.

*The water circuit must be closed circuit.

*Due to continuous improvement, the above specifications may be subject to change without notice.

*6




| Unit converter |
|---|
| kcal/h = kW x 860 |
| BTU/h = kW x 3,412 |
| lbs = kg/0.4536 |
| cfm = $m^3$/min x 35.31 |

| Model | | | | EACV-P900YA(-N)(-BS) |
|---|---|---|---|---|
| Power source | | | | 3-phase 4-wire 380-400-415V 50/60Hz |
| Cooling capacity *1 | | | kW | 90.00 |
| | | | kcal/h | 77,400 |
| | | | BTU/h | 307,080 |
| | Power input *2 | | kW | 27.27 |
| | Current input 380-400-415V | | A | 46.0 - 43.7 - 42.2 |
| | EER（Pump input is not included） | | | 3.30 |
| | ESEER（Pump input is not included） | | | 5.66 |
| | EER（Includes pump input based on EN14511） *3 | | | 3.08 |
| | ESEER（Includes pump input based on EN14511） *4 | | | 5.46 |
| | Water flow rate | | $m^3/h$ | 15.5 |
| Maximum current input | | | A | 61 |
| Water pressure drop *5 | | | kPa | 135 |
| Temp range | Cooling | | ºC | Outlet water 5 ～ 25 *7 |
| | | | ºF | Outlet water 41 ～ 77 *7 |
| | Outdoor | | ºC | -15 ～ 43 *7 |
| | | | ºF | 5 ～ 109.4 *7 |
| Circulating water volume range | | | $m^3/h$ | 7.7 ～ 25.8 |
| Sound pressure level (measured in anechoic room) at 1m *5 | | | dB (A) | 65 |
| Sound power level (measured in anechoic room) *5 | | | dB (A) | 77 |
| Diameter of water pipe (Standard piping) | Inlet | | mm (in) | 50A (2B) housing type joint |
| | Outlet | | mm (in) | 50A (2B) housing type joint |
| Diameter of water pipe (Inside header piping) | Inlet | "-N" model | mm (in) | 100A (4B) housing type joint |
| | Outlet | | mm (in) | 100A (4B) housing type joint |
| External finish | | | | Polyester powder coating steel plate |
| External dimension HxWxD | | | mm | 2450 x 2250 x 900 |
| Net weight | Standard piping | | kg (lbs) | 57 (2110) |
| | Inside header piping "-N" model | | kg (lbs) | 992 (2187) |
| Design pressure | R410A | | MPa | 4.15 |
| | Water | | MPa | 1.0 |
| Heat exchanger | Water side | | | Stainless steel plate and copper brazing |
| | Air side | | | Plate fin and copper tube |
| Compressor | Type | | | Inverter scroll hermetic compressor |
| | Maker | | | MITSUBISHI ELECTRIC CORPORATION |
| | Starting method | | | Inverter |
| | Quantity | | | 2 |
| | Motor output | | kW | 11.7 x 2 |
| | Case heater | | kW | 0.045 x 2 |
| | Lubricant | | | MEL32 |
| Fan | Air flow rate | | $m^3/min$ | 77 x 6 |
| | | | L/s | 1283 x 6 |
| | | | cfm | 2719 x 6 |
| | Type, Quantity | | | Propeller fan x 6 |
| | Starting method | | | Inverter |
| | Motor output | | kW | 0.19 x 6 |
| Protection | High pressure protection | | | High pres.Sensor & High pres.Switch at 4.15MPa (601psi) |
| | Inverter circuit | | | Over-heat protection, Over current protection |
| | Compressor | | | Over-heat protection |
| Refrigerant | Type x charge | | | R410A x 19(kg) x 2 *6 |
| | Control | | | LEV |

Note.

*1 Under normal cooling conditions at outdoor temp 35ºCDB/24ºCWB (95ºFDB/75.2ºFWB) outlet water temp 7ºC (44.6ºF) inlet water temp 12ºC (53.6ºF).

*2 Pump input is not included.

*3 Pump is not included in e-series.

*4 Calculated based on EUROVENT condition.

*5 Under normal cooling conditions at outdoor temp 35ºCDB/24ºCWB (95ºFDB/75.2ºFWB) outlet water temp 7ºC (44.6ºF) inlet water temp 12ºC (53.6ºF) capacity 90kW water flow rate 15.5$m^3$/h.

*6 Amount of factory-charged refrigerant is 6 (kg)×2. Please add the refrigerant at the field.

*Please don't use the steel material for the water piping.

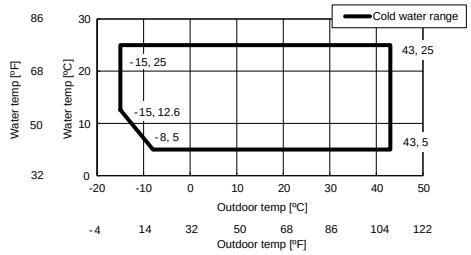
*Please always make water circulate, or pull the circulation water out completely when not in use.

*Please do not use groundwater or well water in direct.

*The water circuit must be closed circuit.

*Due to continuous improvement, the above specifications may be subject to change without notice.

*7




| Unit converter |
|---|
| kcal/h = kW x 860 |
| BTU/h = kW x 3,412 |
| lbs = kg/0.4536 |
| cfm = $m^3$/min x 35.31 |

# MEMO

for a greener tomorrow

Eco Changes is the Mitsubishi Electric Group's environmental statement, and expresses the Group's stance on environmental management. Through a wide range of businesses, we are helping contribute to the realization of a sustainable society.

**The Air Conditioning & Refrigeration Systems Works acquired ISO 9001 certification under Series 9000 of the International Standard Organization (ISO) based on a review of Quality management for the production of refrigeration and air conditioning equipment.**

**ISO Authorization System**
**The ISO 9000 series is a plant authorization system relating to quality management as stipulated by the ISO. ISO 9001 certifies quality management based on the "design, development, production, installation and auxiliary services" for products built at an authorized plant.**

**FM33568 / ISO 9001;2008**

**The Air Conditioning & Refrigeration Systems Works acquired environmental management system standard ISO 14001 certification.**

**The ISO 14000 series is a set of standards applying to environmental protection set by the International Standard Organization (ISO).**
**Registered on March 10, 1998.**

⚠Warning

■Do not use refrigerant other than the type indicated in the manuals provided with the unit and on the nameplate.
- Doing so may cause the unit or pipes to burst, or result in explosion or fire during use, during repair, or at the time of disposal of the unit.
- It may also be in violation of applicable laws.
- MITSUBISHI ELECTRIC CORPORATION cannot be held responsible for malfunctions or accidents resulting from the use of the wrong type of refrigerant.

■Our air-cooled Chilling Units contain a fluorinated greenhouse gas, R410A depending on the products.

# MITSUBISHI ELECTRIC CORPORATION

MEE14K028

New publication effective Mar. 2015
Specifications subject to change without notice